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CANADA

MEDICAL JOURNAL.

ORIGINAL COMMUNICATIONS.

Clinical lecture delivered at the Montreal General Hospital by
J. M. DRAKE, M. D., Professor of Clinical Medicine, McGill
University.—*Fatal case of Rheumatic Delirium.*

Organic or functional disorders of the brain, occurring as a complication of acute rheumatism, are fortunately of somewhat rare occurrence, and indeed have only attracted much attention within a comparatively recent period. You are fortunate in having witnessed such a case, as it will serve to impress you with the possibility of its occurrence and the danger which it imports. We had in this case what appeared at first a somewhat severe (but by no means unusually so) case of acute articular rheumatism; several joints were affected—the knees, wrists, smaller joints of the fingers, elbows and shoulders. The pulse did not indicate any great disturbance of the vascular system. The sweating was moderate, the heat apparently natural, the tongue coated and somewhat yellow. The treatment adopted at first consisted in the administration of a saline purgative, painting the affected joints with Tr. Iodine: 10 grs., Dover powders at night, and this was followed by the use of an acid tonic mixture, with moderate but nutritious diet. Under this treatment the patient's condition for the first two or three days appeared to be somewhat improved. The pains were not so much complained of, and the tongue became less coated. This alleviation of the symptoms was, however, of very transient duration—he became more irritable, the pains in the joints returned, a slight murmur was detected at the base of the heart, and a few hours later he complained of a stitch in the side. He was then placed on full doses of Bicarb. Potas. every two hours, and blisters were applied in the neighborhood of the affected joints, and also to the sides of the chest. The Dover's powder at night was continued. He appeared much relieved by this mode of treatment. His pains almost left altogether. The Bicarb. Potas. affected his secretions so as to render them dis-

tinctly alkaline in their reaction. The heart affection did not appear to have increased in severity, and everything promised well. It was observed, however, on Thursday last, that he appeared highly emotional and irritable. He had, I should remark, had rather severe epistaxis—he wept as he told me that the nurse had insisted on his eating some corn starch which he did not relish—and the patients in the ward united in saying that he appeared low-spirited, peevish, and disconsolate, frequently declaring that he should die. On Friday evening delirium set in, he became very restless, tossing about in his bed as though he either did not feel or was indifferent to the pains in his joints. He even sprang from his bed and tried to run towards the window, and that night he had little or no sleep. On Saturday, at the hour of visit, he returned rational answers to the questions asked; complained of pain in his head. The pupils were natural. He had no vomiting. The pulse was about 100. His face did not appear unusually pale or flushed. The tongue was but slightly furred. The surface warm and slightly moist. His expression was rather mild and excited, and now and then he would utter some rather incoherent expressions. That night (Saturday) the delirium returned with increased violence, and towards morning he died. The immediate cause of death was not very apparent, but from the description it seems to have been from syncope. The treatment adopted was the application of nine leeches to the temples and a pill containing 2 grs. Pil. Hyd. 3 grs. Scilla, and $\frac{1}{2}$ gr. Digitalis every four hours. I was induced to apply leeches from the fact that his nose had previously bled, which I inclined to regard as a natural effort at depletion and an indication of cerebral congestion. I now believe I was in error on this point, and I wish you to remember that I mention this not for your imitation, but as a warning—not that I consider the trifling loss of blood could have seriously diminished the chances of recovery—but it was certainly a step in the wrong direction, and as such I caution you against repeating it. And yet what could be more natural at first sight than to refer the wild excitement and delirious raving observed in this case, to inflammation of the serous membranes of the brain. We know how frequently other serous membranes as the pericardium and pleura are affected in the course of rheumatism; what was more likely than that the serous membranes should also occasionally suffer in a similar way. The post mortem examination, which was made with considerable care, very decidedly negatived such a supposition. We found the Dura Mater very adherent in the course of the longitudinal fissure, owing to the pressure of an unusually large number of the so-called Glandulæ Pacchioni, which

is so far interesting as indicating morbid action. According to Dr. Todd, they are the product of a chronic, very gradual irritation, due to more or less frequent functional excitement of the brain itself. They are peculiar to the human subject. Nothing similar to them has been found in any of the inferior classes of animals, and they are scarcely observable in the young subject. The superficial veins were rather more full and turgid than usual. The arachnoid was opaque and somewhat thickened in parts. There was a small quantity of subserous effusion. The brain itself was not only not congested, but decidedly anæmic in appearance, the punctæ vasculosæ not more apparent than in perfect health. There was no fluid in the ventricles. The only morbid condition discoverable was situated in the pineal gland, which was the seat of cystic disease. The lungs were, especially in the lower lobes, highly congested, so much so as in some parts to closely resemble apoplectic extravasation. The pericardium contained a quantity of yellowish serum, which I regret was not measured. The heart presented on its external surface some old patches of organized lymph, and a very few small patches of recent effusion; these were especially seen over the auricular portion, and the roughness of the surface thus produced was no doubt the cause of the systolic murmur heard during life. Some ecchymotic extravasations were seen at various points on the surface of the heart. The valves were healthy, and the muscular fibre appeared unusually pale. Liver healthy. Spleen very soft. We thus see that there were no appearances discoverable in the brain to account for the delirium under which the patient sank. To what cause then can its occurrence be referred? There are three conditions which have been admitted as giving rise to cerebral symptoms in rheumatism. 1st, True inflammation of the brain and its membranes. 2nd, Head symptoms, symptomatic of peri or endo-carditis or acute pleurisy. 3rd, Cases of rheumatic delirium unaccompanied by internal local inflammation of any kind. Of the first class of cases, examples are comparatively few. True inflammation of the brain or its coverings, as evidenced by pathological science, is of very rare occurrence in rheumatism. Dr. Watson records a single case—a female patient, who died under his care in the Middlesex Hospital after symptoms of cerebral inflammation supervening upon acute rheumatism. Unequivocal pus was found smeared over the hemispheres of her brain. A similar case is recorded by Dr. Tyfe, in 29th vol. Med. Gaz.; and a third example by Dr. Fuller, as having occurred in St. George's Hospital, under the care of Dr. Seymour. The second class of cases, viz: those in which the head symptoms are symptomatic of inflammation of the heart or pleura, are much

more frequently met with. So commonly, indeed, is the delirium of rheumatism dependent on heart affection that Dr. Watson warns you that whenever, in acute rheumatism, you find your patient flighty or wandering, or more distinctly delirious, or affected with any form or degree of convulsion, examine carefully the condition of the heart. Of the third class, viz: rheumatic delirium unaccompanied by internal local inflammation, a few cases are mentioned by Dr. Todd; and Dr. Fuller states he has seen eight, one of which proved fatal on the third day. Another fatal case is recorded by Dr. Fuller as having occurred in the practice of a friend of his. In all these the heart and chest were repeatedly and carefully examined, without affording any evidence of inflammation. As to the cause of the delirium in these cases—apart from those rare instances of true meningitis which have been met with in which the occurrence of delirium is sufficiently explained by the pathological changes in the structure of the brain or its membranes—there are two explanations. Thus some consider that it is entirely due to inflammation of the pericardium and pleura, the brain becoming afterwards affected in consequence of irritation conveyed to it by the phrenic and pneumogastric nerves. Others reject the idea of sympathetic irritation as inadequate, and attribute the nervous symptoms to disturbance of the cerebral action occasioned by embarrassment of the cardiac circulation. This is Dr. Watson's opinion. After remarking the frequency with which a small quantity of serous effusion is found beneath the arachnoid in connection with carditis and pericarditis, in cases of rheumatic delirium, he says: "Now, that acute inflammation, fixing itself upon some portion of the heart, should embarrass its action and modify the condition of the circulation through the cerebral bloodvessels, is not only conceivable but highly probable. Any retardation of the venous circulation in the head, any engorgement or congestion of that system of vessels would be likely, if we may reason from the analogy of other parts to produce effusion." It is possible that in the patient whose case I have been describing the disorder of the sensorial functions depended on simple disturbance of the cerebral circulation; it is possible that the same disorder depended on the serous effusion; and it is possible, and I think probable (says Dr. Watson,) that it depended in part upon both these causes. In opposition to this opinion, Dr. Fuller points out that even in severe cases, when carditis terminates fatally, delirium convulsions and coma are rare and exceptional phenomena; while they sometimes appear in cases where the cardiac symptoms are of less than average severity, nay, that head symptoms sometimes come without any cardiac lesion at all. The same reasoning ap-

plies to cases in which cerebral symptoms are associated with inflammation of the lungs or pleura. The most satisfactory explanation of the occurrence of rheumatic delirium is that adopted by Dr. Fuller, viz: that it depends on the influence with the irritation of the sensorium resulting from the poisoned condition of the blood. But we know from recorded cases that rheumatic delirium does not always occur in instances where the rheumatic symptoms are best marked. Indeed, it has supervened in cases which appeared to be comparatively slight in their intensity. If, therefore, we admit the rheumatic poison to be the active cause of delirium, how is this discrepancy to be explained? In the following manner:—It seems a well-ascertained fact that the nervous tissue, both in the centres and in the peripheral extensions becomes more excitable and mobile in proportion as its power becomes weaker. The motor nerve is more readily thrown into action, though the impulse it communicates is weak and cannot be long sustained. The sensory nerve is alive to the least impression, and the brain is highly impressible, and hence we find that those persons are most liable to suffer from cerebral symptoms in the course of various disorders where the nervous system has been damaged by previous ill-health, habits of intemperance, or hereditary tendency to mania or other forms of insanity. We know how frequently delirium tremens shows itself when an intemperate man receives a severe injury or is deprived of his customary stimulants, and how frequently delirium follows comparatively slight injuries to persons whose nervous system is reduced by ill-health, or who suffer from unusual excitability. Dr. Trousseau relates a remarkable instance which may serve as an illustration. Now it is precisely persons who are exhausted or cachectic and feeble, or who have been long addicted to intemperate habits, or who have suffered from or inherit a tendency to insanity, who are most likely to be affected by delirium. It is not to be wondered at, says Dr. Fuller, that with a brain participating in the general mal-nutrition of the body, a heart weak, ill-nourished, ill-supplied with nervous stimulus, and hardly capable of maintaining a due circulation; and a blood long vitiated or impoverished, that a slight additional cause of irritation or depression may prove sufficient to distract the brain's equilibrium, and that an attack of delirium may supervene whenever, by the pressure of some fresh morbid matter, the nutrition of the nervous centres is still further interfered with. You thus perceive that the weakened condition of the nervous centres is to be regarded as a predisposing cause, and the altered and poisoned state of the blood as the proximate or exciting cause of rheumatic delirium; and we can readily admit that these condi-

tions are alone adequate to produce delirium, even without local inflammation. In the vast majority of cases, however, the brain is not sufficiently weakened, or the action of the rheumatic poison sufficiently intense, to produce delirium until the supervention of some internal inflammation, more especially of the heart and lungs, still further impairs the nutrition of the brain and deranges its functions.

The delirium which occurs in rheumatism is usually of a wild, furious, character, so much so as to occasionally require severe measures of restraint. Occasionally, but less frequently, it is of a low, feeble character. At the outset the patient is observed to be restless and fidgetty, peevish, desponding, nervous and uncommunicative, perhaps doggedly silent. This state may continue for from a few hours to several days, and then the patient becomes violent and furious. In some the delirium has been accompanied with convulsions, as in a case under the care of Dr. Bouillaud. The pulse is usually frequent, and the pupils dilated. The period during which the delirium may continue is variable, say from a few hours to several days, or even three or four weeks. The Prognosis in cases of rheumatic delirium is of course very serious, but not necessarily hopeless; and therefore any expression of opinion should be extremely guarded. Dr. Fuller relates a case of a girl who was attacked by rheumatic delirium. She was of delicate constitution originally, and had been still further reduced by want of food, overwork, and by previous bloodletting. Yet she recovered, after three weeks' delirium. Death may occur in a few hours. Trousseau mentions the case of a man who died within a quarter of an hour from the manifestations of cerebral symptoms; or the patient may linger several days and succumb at length from weakness or of coma or convulsions.

As to Treatment.—Rheumatic delirium being clearly asthenic in its character, notwithstanding the violence of its manifestations, our principal object of treatment should be to strengthen and aid the weakened brain and nervous system, while at the same time we use appropriate means for subduing any local inflammation which contributes to the general disturbance. For this purpose opium to tranquilize the nervous centers and allay pain, combined with diffusible stimulants, as Hoffman's Anodyne or brandy, will be indicated. A word of caution is necessary in the use of opium. It should be used carefully, tentatively, and its administration immediately discontinued if there be the slightest tendency to coma. On this point I cannot do better than quote the words of Dr. Handfield, Jones. "The more we can perceive the signs of excitement without power in the cerebral disturbance, the more

bold we may be in our administration of stimulants and support. In cases of this kind, opium is often necessary, and its dose must depend on the degree of excitement, and on various other circumstances. Too small doses may only aggravate the excitement, and too large may bring on dangerous or fatal stupor. The determination of this point is one of the most delicate in therapeutics, and cannot be solved, at least in all instances, by administering small tentative doses in succession. I am inclined, says Dr. J., to give large doses of hyoscyamus as ℥i. of the extract, in cases where it might not be safe to give a full dose of opium." For my own part, had I another case of delirium to treat, I would give a large dose of Bromid Potas. as ℥i. with Tr. Valerian or musk and Hyoscyamus. I am the more inclined to the belief that it would be beneficial, from the effect I have seen it produce in incipient delirium tremens; above all, avoid depletory measures; even local depletion, if called for by urgent symptoms, should only be used with the greatest caution—every drop of blood is wanted. If the pericarditis be severe in such cases, it is better to trust to blisters, mercurial diuretics, and opium, and avoid cupping or leeching if possible. I trust you will not look upon it as contradictory what I have just said if I refer to two cases of rheumatic delirium recorded in Dr. Jones' work which were treated by tartar emetic and local depletion in conjunction with opium stimulants. I do so without varying from the opinion I have just expressed, merely to show how recovery may take place under such treatment.

Hospital Reports.

MEDICAL AND SURGICAL CASES OCCURRING IN THE PRACTICE OF THE
MONTREAL GENERAL HOSPITAL.

Case of Fracture of the Occipital Bone, near the Left Parietal,
under the care of JOHN REDDY, M.D., L.R.C.S.I. Reported by
Mr. MONTGOMERY JONES.

John Purcell, aged 22, was brought by the police to the Montreal General Hospital, on the morning of April 8th, when the following history was elicited:

He had been walking across a small bridge near St. Anns, while in a state of intoxication, when, his foot slipping, he was precipitated a distance of some fifteen or twenty feet, falling on a mass of rocks below.

On admission he was profoundly insensible, breathing stertorous; pupils widely dilated, but no apparent sign of paralysis; a wound three inches in length, and gaping, extended from the superior angle of the occipital bone, downwards and backwards; besides, a depressed fracture of the skull in that situation, a portion of bone, three lines in width and about one and one-quarter inches in length, being driven beneath the surface of the external table. There were several contusions of minor character on the body. Pulse, 92; temperature in axilla, 100°; respirations, 20—and labored.

The head was shaved and the upper portion of the scalp wound brought together with a metallic suture. Ice was applied to the head, water-dressing to the wound, and he was ordered, internally, beef-tea and milk *ad libitum*.

April 9th.—Condition unaltered, with the exception that the pulse had fallen to 64. He refers pain to the head when roused. Is ordered Potass Iod., grs v.; Potass Bromid, grs. x.; Ammon. Carb., grs. ij.; Aquæ, ℥ss., every four hours.

April 14th.—Nothing marked has occurred in his symptoms since last noted. The pulse has ranged from 58 to 70, but this morning he attempted to get out of bed, became dizzy, and with difficulty kept himself from falling. During the two hours following this attempt, the pulse fell from about 70 to 48, at which it remained with very slight variation for forty-eight hours. The above medicine was ordered to be discontinued, and two ounces of brandy substituted. In the meantime the wound has progressed favorably under cold-water dressing. The depressed portion of bone looks as though it were exfoliating.

April 20th.—Pulse, 80; temperature normal; bowels regular; no pain in head; has requested his clothes, which are granted; wound being dressed with carbolic acid lotion nearly healed, but, when probed, a portion feels rough, as though denuded of periosteum.

May 20th.—Dr. Reddy to-day enlarged the opening communicating with the diseased bone, and removed a portion one and one-half inches long by one-fourth of an inch broad. The patient left the hospital the following day, since which he has quite recovered.

PERISCOPIC DEPARTMENT.

Surgery.

CLINICAL LECTURES ON INTESTINAL OBSTRUCTION.

By THOMAS BRYANT, F.R.C.S., Surgeon to Guy's Hospital.

ON LUMBAR COLOTOMY FOR THE RELIEF AND CURE OF RECTAL OBSTRUCTION AND DISEASE.

(Reported by Mr. Henry CLARKE, student.)

GENTLEMEN,—I have selected the operation of lumbar colotomy—that of opening of colon in the right or left loin—as the subject of to-day's lecture, not only because I know it to be well worthy of your attention, but because I believe it has not yet found its true place in Surgery. It is admitted among the justifiable operations in exceptional cases, to be performed when all other means have failed to ward off death and give relief, but under no other circumstances; as an operation for any curative purpose it is hardly recognised. When successful also it has generally been believed that the condition of the patient is so miserable—that the escape of fæces and wind from the artificial wound causes so much distress and discomfort—that life at such a price is hardly worth having; that at the best it may prolong life, but with a local discomfort that is almost unendurable. Yet I think I shall be able to show you that the operation deserves far higher claims upon our attention than these; that it not only is a most valuable means of prolonging life and relieving pain; that when successful the artificial anus is not such a source of local discomfort as you might believe; and that, as a curative agent, it bids fair to be of great and undeniable value. I propose, therefore, to consider the operation in two points of view—first, as an operation of expediency to prolong life and relieve pain; and, secondly, as a curative agent. As an operation of expediency, it may be called for under any circumstances in which some chronic obstruction in the large intestine exists: whether the obstruction be due to the presence of some tumour pressing upon the bowel—that is, to some outside influence—or to some stricture contracting the calibre of the bowel from some inside influence. As a curative agent, it may be performed for severe examples of ulceration of the rectum, which in a

pathological sense are curable, but if left alone will go on to cause stricture; or for complications of ulceration of the intestines, in which the ulceration has perforated the bladder, and produced a recto-vesical fistula. I propose to consider it, first, as an operation of expediency—where there is obstruction of the large intestine, and other means have failed to give the necessary relief; and more particularly with reference to tumours. Now, I must ask you to recall to your minds some of the cases I have related in my former lectures, of intestinal obstruction produced by tumours so occluding the return or colon as to produce complete mechanical obstruction. The first case I will recall is one you will remember in which a cancerous tumour was present, hanging from the promontory of the rectum into the pelvis, and so completely occluding the rectum—the case of Mrs. M., aged 46, that I saw in consultation with Mr. Phillips, of Leinster-square. She had suffered from chronic obstruction to the bowel for months, and had been under the care of my colleague Dr. Owen Rees and Dr. West. For one month before I saw her she had been the subject of constipation, and for ten days vomiting and tympanitis existed. Lumbar colotomy was performed with relief, but she died on the third day, on the patient suddenly lifting herself in bed to have the draw-sheet changed.

At the post-mortem examination we found that this cancerous mass hanging over the promontory of the sacrum had on that sudden movement burst, and discharged itself into the peritoneal cavity, producing the collapse and death of the patient. In that case the operation, although unquestionably it would not have saved her life, would have prolonged it and rendered the remainder of it much more comfortable. I do not know that I could have given you a better example of the class of cases which we are now discussing. In the second case we got a better result. It was caused by a growth inside the bowel. A young lady, only 18 years of age, had insuperable constipation for seven weeks, during the whole of which time nothing whatever passed per rectum. Ene-mata had been given her, both by the nurse and by a skilled Surgeon; but they returned always as they had been sent up—not a trace, not a smell of faecal matter came down, and no wind. Owing to the obstruction she vomited, but this never went on to stercora-ceous vomiting. She had been in the hands of several Medical men; a Physician-accoucheur had seen her, and could find nothing uterine. I examined her and could find nothing whatever beyond the constipation. I examined the rectum most thoroughly, and could find nothing. And this young lady, only 18, had mechanical obstruction clearly of some kind, completely shutting up the bowel. From the distension of the bowel it looked as if it were

the large intestine. I thought I could trace the upper part of the large intestine very much distended. I say "thought" because there is oftentimes great fallacy here; you are very liable to come to a wrong conclusion upon that point. It is very difficult to tell whether the bowel you see distended is large or small intestine. The constipation having been of some weeks' standing, and all remedies having failed to give relief, I felt that life could only be prolonged or saved by an operation. This I did by opening the colon in the right loin. A quantity of fæces came away. The operation was performed in September of last year; now she is up and about. All the fæces pass through the artificial anus. She takes her food as well as any of us. But lately, during the last month or six weeks, she has complained of a bearing-down pain about the pelvis. I have had the opportunity of making two examinations of this patient since, and on both occasions I found clearly a tumour coming down into the pelvis—so clearly that, on passing the finger into the rectum, one could easily imagine the finger was in the vagina, and felt a polypus coming down from the uterus. I only hope this may force its way down lower, and that it is a fibrous polypus. Pathologically we know such things do exist. Should it come down and be within the means of Surgical treatment, we may remove it, and save the life of the patient. This, then, is a case of a tumour in the intestine itself producing mechanical obstruction, and necessitating such an operation as I have performed. In another case a hydatid tumour completely blocked up the pelvis, and produced obstruction of the rectum and also of the urethra. In that case I was consulted for the retention of urine. I relieved it by means of an incision, letting out a quantity of hydatids; but the man died from the constipation: the intestine burst, sloughed from overdilatation. These are three good examples of obstruction from tumours occluding the large intestine, in which colotomy saved or might have saved life. Never hesitate, therefore, when you get such cases of intestinal obstruction as I have related, to perform such an operation. Do not wait until the patient is moribund before you perform it; colotomise, with the hope of such success as the history of these cases would seem to warrant.

We will now proceed to consider colotomy for the relief of some organic disease of the rectum, and, using a general term, say for stricture of the rectum—recognizing the fact that we may get stricture from cancerous disease (either carcinoma or epithelioma), from syphilitic disease of the rectum, or from simple ulceration, in the same way as you may get in other parts syphilitic, cancerous, or simple ulceration. In a large number of cases there is no doubt

this stricture of the rectum is caused by cancerous disease. In many it is the result of syphilis; in a few of simple ulceration. You will find no better example of the (syphilitic?) form than in the patient in Astley Cooper ward now under care. This is the history of the case as given by the reporter, Mr. Lubbock:—

(I need hardly tell you in passing that any attempt to dilate a stricture by a bougie when ulceration has taken place is utterly futile: it is a direct irritation to the patient, it excites the breaking-up of the material, and therefore rather hastens the end than retards it.)

STRICTURE OF RECTUM—VAGINAL AND ISCHIO-RECTAL FÆCAL FISTULÆ.

(Reported by Mr. MONTAGUE LUBBOCK.)

Eliza O., aged 29, admitted into St. George's Hospital on February 28, 1872, under Mr. Bryant, from Stoke, Suffolk. Patient has led a healthy life until her third confinement, four years ago, which was protracted, and the child was delivered by means of instruments after having been dead for three weeks. She laid up for fourteen days, and upon getting up found a discharge coming from the vagina, and was obliged to wear a cloth, as the fæces continually passed from the bowel into the vagina. Two years and a half ago she went to St. Bartholemew's Hospital, where an instrument was passed up the bowel, but which did not stop the passage of the fæces from the bowel into the vagina. Patient has been married nine years, and has been confined six times, always going the full time, and three of the children being born alive and three dead.

1st child born about 7 years ago, alive, died after 5 weeks.

2nd " " 6 " " dead.

3rd " " 5 " " dead.

4th " " 4 " " dead.

5th " " 2 " " alive, died after 3 months.

6th " " 1 " " alive, has had snuffles, but no

eruption on the skin. Patient says that her husband is a labourer enjoying good health, and never to her knowledge having suffered from sore throat, eruption on the skin, or other syphilitic symptom.

On admission.—March 1. Patient is a well-nourished person, having the appearance of being in good health, but complaining of the passage of fæcal matter by the vagina. Superficially examined by Mr. Rendle: About the anus are several elevations, some having openings which discharge a thin purulent matter; soft parts around thickened. The parts being tender, no further examination was made.

4th. Mr. Bryant, upon examining the patient, found the skin

near the anus riddled with fistulous openings, three existing on the right side of the anus, and four on the left, and by which passed a thin purulent matter. There were numerous outgrowths about the anus; and these symptoms led Mr. Bryant to suspect the existence of stricture of the rectum. Upon introducing the finger per anum a stricture was felt about one each above the anus, and the obstruction was so complete that no passage could be felt by the finger. Mr. Bryant was of opinion that the nature of this stricture was decidedly syphilitic.

Now, there is a case that is worth looking at. If you examine the patient locally, the first point which declares itself is a faecal discharge from the vagina; there evidently is some communication between the rectum and vagina. On examining the anus, four or five anal fistulous openings are visible, communicating with the bowel, through which faeculent fluid oozes; some fleshy anal outgrowths are likewise present. Whenever you look at a patient and see such a condition as that, you may safely say there is a stricture above it. You would not get all these symptoms except from the presence of some obstruction higher up in the rectum. These fistulae, anal and vaginal, are merely the means nature is adopting to get rid of the faeces somehow or other. On passing the finger into the anus we found the rectum perfectly occluded; no orifice could be made out to get the tip of the finger into. Within an inch of the anus it came to a cul-de-sac and would go no further, though no doubt with a probe we might have found some little aperture of communication with the upper bowel still left. So this poor creature had gone on for years with this condition of matters. It had been recognised for two years and a half, but the stricture must have existed before that—no doubt for many months, if not for years—although it was made manifest in her first pregnancy, the pressure of the child's head having broken down the tissue and produced the recto-vestical fistula. In this case I have very little doubt as to the stricture being syphilitic; the history of the case fairly indicates it. Six infants born at the full times—four dead, the other two only born alive; and in the last child you see we get another symptom, the snuffles, which you know is a common consequence of hereditary syphilis; and although by itself it is not sufficient to establish the syphilitic nature of the disease, with the other points in the case it renders it very probable.

Having given up a fairly typical case of stricture of the rectum, although of a syphilitic form, I propose now to make a few brief remarks upon the subject of stricture as a whole.

In the majority of cases this is caused by cancerous disease; in

many it is the result of an inflammatory process, simple or syphilitic, from the cicatrisation of deep-seated and extensive ulceration; in others it is due to the contraction of inflammatory material poured out external to the bowel in the submucous tissue. In exceptional instances it may be caused by contraction of the parts external to the bowel, after pelvic cellulitis; and Curling quotes a case where it was the direct result of an injury.

In all these conditions the calibre of the intestine is gradually or rapidly encroached upon, till at last complete obstruction takes place. The stricture may appear after death as an annular contraction of the bowel, with adventitious material in the submucous tissue, and hypertrophy of the muscular coat, looking very like a scirrhus pylorus; or as a thickened, ulcerated, irregular mass of cancerous material, infiltrating all the tissues of the bowel, although rarely extending beyond two or three inches in length. The bowel above the stricture as time goes on will become dilated, and at a late stage it may rupture, ulceration of the colon being a very common consequence of its over-distension. Below the stricture there will often be found pedunculated fleshy or cancerous growths. It has been already pointed out that fistula—vaginal, cutaneous, or vesical—often coexist with stricture; abscesses and hemorrhoids are also occasionally met with.

Stricture of the bowel, taken as a whole, is twice as common in women as in men—my note-book revealing the fact that of forty eight consecutive cases thirty-two were in this sex. Syphilitic stricture seems to be the more common in women; cancerous stricture in men. Curling, out of sixty-seven cases of reputed cancer, gives forty-four as found in the male sex.

The approach of this disease is very insidious, whatever may be its origin or nature. *Constipation* is the one general early symptom, and it is not till some ulceration has commenced, either at the seat of stricture or above it, that others appear—such as *diarrhoea* with lumpy stools containing mucus, pus, or blood, straining at stool, and a sensation of burning in the part afterwards; with at last a complete stoppage of the bowel—abdominal distension and dyspeptic symptoms being constant accompaniments. An examination with the finger carefully introduced into the rectum will as a rule, at once reveal the true nature of the case; for about two inches up the bowel the narrowing will usually be felt with or without new tissue infiltrating the part of ulceration. In exceptional cases the stricture is beyond the reach of the finger; but under these circumstances it may at times be brought within its reach by pressing with the free hand upon the abdomen above the pelvis.

When the stricture is an annular one it is probably cicatricial or fibrous—possibly cancerous.

When epithelial or positively cancerous, the seat of stricture will be infiltrated with a nodular irregular mass of new tissue, probably breaking down and ulcerating. Sometimes this mass can be felt externally at the brim of the pelvis over the left iliac fossa. I have felt this clearly on three occasions.

When syphilitic, the ulceration will probably extend upwards from the anus, and anal integumental outgrowths will frequently exist.

In ordinary cases of cancerous stricture there is an inch or more of healthy rectum between the anus and the stricture. In exceptional and very extensive disease the anus will be involved.

In advanced cases the anus will appear patulous, and on separating the buttocks a red brickdust-coloured fæculent discharge may run out; wind will also pass without effort.

To flat tape-like or figured faeces, as given by authors as characteristic of this disease, I with Curling, do not ascribe much importance—for such a condition of motion is very usual even in a state of health when the bowels are irritable, and many other conditions of the pelvic parts may give rise to the same thing; but when a patient never passes a well-formed motion, large or small, the case looks suspicious. On the other hand, when a large well-formed stool is occasionally seen, the probabilities of a stricture existing are very slight.

The examination of a rectum the subject of ulcerative disease with a tube, flexible or otherwise, requires the greatest care, for perforation of the bowel is very prone to occur.

In those cases of stricture of the bowel, therefore, where ulceration exists, and the hope of doing good by dilatation has passed—when relief can only be given by sedatives, and life cannot long be sustained—the operation of colotomy is of great value. It gives comfort to a degree that sometimes astonishes, and always gratifies. On convalescence or recovery it is not found to be practically associated with such inconveniences as Surgeons of old have theoretically surrounded it. It prolongs life, and adds materially to its comfort; and little more than this can be said of most operations. But it must not be postponed till the powers of life have become so exhausted as to render the chances of recovery from the operation poor, or till the large intestine has become so distended as to have become damaged or inflamed. It should be undertaken as soon as it is clear that the local disease has passed beyond the power of local treatment with any prospects of good, and the general powers of the patient are beginning to fail—as

soon as the local distress finds no relief from palliative measures, and a downward course with unmixed anguish is evidently approaching. The difficulties of colotomy are not great, nor are its dangers numerous. When unsuccessful it has been usually made so from the delay in its performance—from the want of power in the patient, or secondary effects of the disease in the abdominal viscera. When *most* successful it gives immediate relief to most of the symptoms, and makes life worth having; when *least* so, by lessening pain it render what remains of life enduring. I have performed this operation for stricture of different kinds on ten occasions, and have never regretted it.

I will now proceed to consider the operation of colotomy *as a curative agent*—as an operation by means of which repair may go on uninterruptedly in the seat of the disease, even to a cure, and by which relief to local pain may be given and life prolonged; for I have something more than a belief that this result may be looked for in many cases, if not all, of simple ulceration of the bowel, as well as in cases of syphilitic stricture.

In cancerous disease such a consequence of the operation can hardly be expected; and yet, in the case now to be related, it would appear as if a curative process has taken place—for the ulceration that existed before the operation has now ceased, and a smooth, non-ulcerating, nodular structure alone remains. The patient suffers no pain from the local affection. The ulceration that existed has skinned over, and presented a smooth, unbroken surface, and now secretes a clear mucus. No blood or broken-up tissue comes away after examination.

STRICTURE OF RECTUM—COLOTOMY—RECOVERY.

(Reported by Mr. Barnard.)

Elijah B., aged 23, was admitted into Guy's Hospital on August 31, 1871, under Mr. Bryant, with stricture of the rectum. He had been a healthy man up to eighteen months ago, when he had diarrhoea, and this has never left him for long. He has never had any pain in the bowels. He has, at times, passed blood with his motions. He has lost flesh. At times his bowels do not act for several days; his stools are always small. A stricture of the rectum has been detected by a medical man before his admission. On admission the anus appeared very patulous, and a narrow stricture was detected about one inch and a half up the bowel. It was so small that the top of the finger could not be passed through it; it was also ulcerated.

Oct. 10.—Mr. Bryant performed colotomy in the left loin, mak-

ing the oblique incision. No difficulty was experienced in the operation. The bowel was stitched to the margin of the wound and then opened.

On the second day after the operation the man said he felt greatly relieved; the wound did well in all respects, and in one month the man had so convalesced as to walk out of the Hospital.

February 23.—Quite comfortable in all ways. Ulceration apparently healed; surface smooth and painless. Pure, clear mucus alone escaped after examination.

I took this case to be one of cancer, for it was difficult to come to any other conclusion; and if it be, it certainly speaks better for colotomy as a curative agent in this affection than I have hitherto regarded it, and it is an argument in favor of performing it at an early period of the disease.

Again, in cases of recto-vesical fistula, where ulceration takes place in the rectum and makes its way into the bladder, the relief given by colotomy is very striking; for I must remind you that patients, the subjects of this condition are enduring the pain of ulceration of the rectum as well as that of a foreign body in the bladder. It seems, moreover, that this ulcerative action, although at times cancerous, is more frequently of a simple kind, and that, as a consequence, is quite capable of a complete cure. I have had four such cases to treat. In one (published in the *British and Foreign Review*, January, 1869) the ulceration completely healed after the operation. In two others, which I have related in detail at the Clinical Society, 1872, the same results seems to have taken place; for although in one the fistula is still clearly open, no signs of ulceration are present, and in the second, from recent intelligence, it appears that for the last three months the fistula has closed. I operated upon him three years ago, and up to three months ago urine passed into the rectum downwards through the anus and upwards through the artificial anus in the left loin; for the last six months, however, no such escape has taken place. He can retain his urine as well as ever he could. He has no bladder irritation or rectal irritation. All his urine comes the right way, and all his motions pass through the loin. He suffers no pain whatever, locally or generally; and beyond the slight inconvenience—for the patient says it is only slight—of passing his motions through the loin, he is as well as ever he has been in his life.

The fourth case has only recently died, and I now show you the preparation removed after death. The disease is clearly villous and very extensive in its nature; it has made its way into the bladder. The operation in this case gave relief and prolonged life, but no more. Unlike the other three, it had no curative

tendency, but the three are enough to support the views I would now wish you to bear in mind.

The same result may also be looked for in a certain class of cases of ulceration of the rectum that is not cancerous—a class that, if left alone, will go on to produce stricture, and that does not get well if left alone. I allude to severe examples of simple ulceration of the rectum, and to syphilitic disease. All surgeons know the obstinacy of those affections, and the almost invariable tendency they have to progress and to end in a fatal stricture. The parts cannot heal for the same reason that an ulcer leading down to the muscles cannot heal so long as muscular movement is allowed, and that the painful ulceration of the rectum won't heal till the sphincter muscle is divided. Surgeons now also know how rapidly ulcers so placed do heal when splints are applied and muscular action is prohibited. When the fibres of the sphincter are paralyzed by a superficial section of the sphincter muscle, surely the same result may be expected in those cases of ulceration of the rectum to which I now allude, when the bowel is left at rest, and the fæculent flow is diverted from the natural channel through an artificial opening as made by colotomy. In the case now up-stairs in Naaman ward, in which cancerous disease was supposed, to exist, this result has been already recorded to have partially taken place. In the case of recto-vesical fistula the same healthy action in kind, although more marked in degree, has likewise been recorded; and I believe that if colotomy were performed in many more examples of severe ulceration of the rectum, syphilitic and otherwise, the same result might be recorded.

With this object I performed the operation, in February, upon a young married lady, aged 24, a patient of Dr. Wise, of Plumstead, for extensive ulceration of the rectum and stricture of three years' standing, with, so far, excellent results. With the same object I hope to perform a like operation upon that woman in Astley Cooper ward, whose case I have already read to you, with recto-vaginal and anal fistula, the result of stricture and ulceration. But remember that when the operation is performed with a curative object it must not be postponed to too late a period; it should be undertaken when all other means are clearly of little use, and when the disease, if left alone, must progress to its too certain end.

THE OPERATION OF COLOTOMY.

For irremediable stricture or mechanical obstruction of the rectum from any cause, Callisen's operation of opening the colon in the left loin should be followed. When the seat of obstruction is higher than the rectum, and it is a point whether it be in the sig-

moid flexure or transverse colon, Amussat's operation in the right loin should be performed; for Callisen first suggested colotomy in 1796, and applied it to the descending colon, and Amussat revived the operation, and extended it to the ascending colon in 1839.

The colon in this position lies behind the peritoneum, immediately beneath the transversalis fascia. The kidney is in close contact with it above; and in one case I operated upon, this organ was placed so low down as to fill in the space between the rib and pelvis, and it had to be pushed upwards to allow of the colon to be seen and opened.

The operation is to be performed as follows in the left loin :

The patient is to be placed upon his left side, with a pillow beneath the loin so as to arch somewhat the left flank, and turned two-thirds over on to his face. The outer border of the quadratus lumborum muscle is then to be made out, for this muscle is the surgeon's main guide. An incision is then to be made, four or five inches long, beginning one inch and a half to the left of the spine, below the last rib, and passing downwards and forwards in front of the anterior spine of the crest of the ilium, the line of the incision passing obliquely across the external border of the quadratus lumborum muscle about its centre, and taking the same direction as the nerves which traverse this part. By this incision the integuments and fascia are to be divided, and the external border of the quadratus muscle exposed; the abdominal muscles being laid open in a direction to the same extent as the external wound. All vessels are to be secured. The transversalis fascia will next come into view, and beneath this will be the colon; a layer of fat generally intervening. The fascia is to be opened with caution. In the loose fat and cellular tissue beneath the fascia the colon is to be found. When distended it comes at once into view on the surgeon dividing the fascia; when empty, some little trouble may be experienced in hooking it up with the finger. I have found, on several occasions, great help in doing this by rolling the patient over on his back at this stage of the proceedings. The bowel falling into the finger is thus readily caught. Allingham says (St. Thomas's Hospital Reports, 1870) that from more than fifty dissections he has always found the descending colon to be situated half an inch posterior to the centre of the crest of the ilium; the centre being the point midway between the anterior superior and posterior superior spinous processes. He has never known this point to fail him. When difficulties are felt in the operation he believes they are from the colon being looked for too far from the spine; and in these views I cordially agree. When the bowel has been seized it should be

partially rolled forwards, in order to expose its posterior surface; for if this be not done there is a risk of the surgeon wounding the peritoneum, as it is reflected from its anterior surface on to the anterior abdominal walls. The bowel having been drawn up to the wound, is then to be secured to the integument by the passage of two double ligatures introduced through one margin of the wound, then through both sides of the bowel, and lastly through the second margin; these ligatures being finally held by an assistant. The bowel should then be opened by a longitudinal incision, about three-quarters of an inch long, over the ligatures that have traversed its canal. The centre of the ligatures are then to be drawn out and divided into two portions; with these the two sides of the opening in the intestines are to be fixed to the margins of the wound. Two or more stitches may then be introduced to make the artificial anus secure.

The margins of the wound may be oiled to guard against the irritation of feces, and the patient placed in bed. At times the feces escape in large quantities directly the bowel is opened; at others some slight feculent discharge occurs at the time, the larger flow taking place later. This is not, however, a point of any importance, and the surgeon should take no measures to get the bowels to act. Indeed it is better, as far as the operation is concerned, that the flow be postponed; for within an hour or so the parts about the wound become sealed with lymph, and thus the risks of extravasation become diminished.

After the operation a good sedative should be given, such as opium, morphia, or chloral, and the recumbent position maintained; a piece of oiled lint covered with oakum, and kept in place with a soft towel, being the best local application.

The sutures may be removed on the fourth or fifth day, according to circumstances, and the most perfect cleanliness observed. Good food and stimulants may be given within a day or so of the operation, repairs, as a rule going on favourably.

When the wound has cicatrised the patient may get up, a folded napkin fastened on with a lumbar belt being a good application. The ivory ball or plug that has been advised appears to be a useless instrument; it cannot be kept in its place, and does not, therefore, prevent the prolapse of the bowel that is said to be so likely to follow the operation. An indiarubber ball, with enough of one of its sides taken away to cover in the wound, is an excellent application. It is capable of holding any little feces or fluid that may pass; it retains wind, and is a good pad. Three of my patients are now wearing it, and express themselves as feeling great comfort from its use. With the oblique incision, as sug-

gested, the prolapse of the bowel that is said so commonly to take place does not appear to be very troublesome; it takes place only to a very limited degree, the incision falling into the line of the lumbar integumental fold.

Should the contraction of the orifice take place—a condition I have not yet met with—a sponge tent may be daily introduced. Mr. Pollock gives a case in Holmes's "System" where such treatment was a necessity.

After convalescence it is well occasionally to wash out the lower portion of the bowel with warm water, for some fæces are apt to pass the artificial opening and rest in the rectum, causing irritation. When the anal end is open it is best to do this through the natural opening; when it is closed, through the artificial.

I have performed this operation now at least sixteen times—in four for vesico-intestinal fistula, in two for pelvic tumor, and in ten for stricture of the rectum. One of the cases of vesico-intestinal fistula lived four months after the operation, and died with suppurating kidney, but entirely relieved from all vesical and rectal distress (*British and Foreign Review*, January, 1869); two are now alive and enjoying life, suffering very little inconvenience indeed from the artificial anus. (Clinical Society, 1872.) One of the patients with pelvic tumour died on the third day from a rupture of the tumour; the second is in good health and comfort. Of eleven other patients, one lived eighteen months after the operation in ease, dying from supposed cancer of the liver after a month's illness; four died within four months, and five are alive, one having been operated upon in May, 1870, a second in November 1871, and three this year.

Curling has performed and recommended the operation in seventeen cases, and in ten of these the patients survived over periods varying from two to eighteen months. Allingham has had ten cases. Two are now living, three and four years after the operation; one survived it four years and a half, and another nineteen months; five lived a few months, and one a few days.

These results cannot be regarded otherwise than with satisfaction; for it must be remembered that in all these cases the operation was undertaken when life was threatened, and the distress from the local disease was severe and otherwise irremediable. The operation is a good one in all cases of vesico-intestinal fistula, when solid fæces flow with the urine; in all cases of stricture of the rectum, as soon as the obstruction becomes serious and local distress great; in all other cases of mechanical obstruction to the rectum from pelvic causes, when no less severe measure for relief can be suggested; and last, but not least, in extensive ulceration

of the rectum—cancerous, syphilitic, or simple—when local treatment fails to give relief, and local distress is great, when the general powers are evidently giving way from the local disease, and the suffering severe, quite irrespective of all mechanical obstruction.

In no case, however, should the operation be postponed till the patient's powers are failing, for the prospects of recovery are greatly lessened, and convalescence rendered impossible.

—*Medical Times and Gazette.*

CASE OF SPINA BIFIDA CURED BY INJECTION.

By JAMES MORTON, M.D., Surgeon and Lecturer on Clinical Surgery, Glasgow Royal Infirmary.

The child, who is the subject of the following report, was brought under my notice by Dr. Robert Grieve, of this city, about fourteen days after its birth; the most prominent part of the tumour was then slightly ulcerated. The mother was directed how to defend it and dress it properly. The following report of it was written by my assistant, Mr. John Caskie.

Ann Ross, aged two months, had a tumour situated over the lower lumbar vertebrae. At birth it was small, but had gradually increased in size. Some time ago it showed signs of ulceration; but these healed up, leaving thickening and cicatrices of different colours. On admission the tumour was as large as a middle-sized orange, and cylindrical in shape. At some parts it was reddish, and at others bluish in tint. It was semi-transparent, fluctuant and somewhat wrinkled on the surface. It became tense when the child cried. On looking through it, several stripes were seen passing over its internal surface. On March 27, 1872, it was tapped with a grooved needle, and about three ounces of a fluid resembling cerebro-spinal were drawn off. The child did not suffer; and, as the fluid continued to exude, the opening (which was made upon the right side towards the top) was closed by means of collodion. On April 1st the child was in fair condition, had no diarrhoea, took the breast well, and was in all respects healthy. On April 2 the tumour was again tapped, and about two ounces of fluid were drawn off. After the tapping the fontanelle was depressed, but by night it was again normal. The child continued well, and no leakage took place. The tumour was dressed with a small piece of oiled lint. On April 5th the tumour was tapped with a small trocar and cannula, and half its contents were drawn off. About two drachms of a solution of iodine in glycerine were slowly injected, and the tumour was dressed with oiled lint. The child suffered a little from shock at first, but soon recovered. It con-

tinued well during the day, taking the breast well. The fontanelle was for a time depressed. At night the tumour was half filled, and the fontanelle was nearly normal. The lower limbs on examination were found to be quite normal, as regarded colour and temperature. On April 6th, the tumour was about three-fourths of its former size. The contents were thicker; but no distinct coagulation had taken place. The child continued well. On the 8th, slight ulceration was observed over the top of the tumour. It was diminished in bulk, and was now only about half its former size. The child had complete power over the lower limbs, and was well. The tumour continued to diminish; and on the 16th consolidation had taken place at the upper portion, and the other parts felt firmer than formerly. The ulceration had not increased, but there was slight discharge of pus from under the seat that covered it. On the 25th the tumour was nearly on a level with the surrounding skin, and only distinguishable from it by its livid colour. Over its centre there was a small triangular depression, from which a small slough was taken by Dr. Morton. The child was in all respects healthy, and had complete power over its limbs.

On the 6th April last, in the *British Medical Journal*, there is an account of the first and only other case which I have treated in the manner here noted, so that both have been successful. The composition of the iodine solution will also be found there stated.

The procedure adopted may be shortly re-stated thus: 1. Two tentative tappings are made with a grooved needle, with an interval of four or five days between the two. 2. The tumour is tapped with a small trocar and cannula, allowing about half the contents of the sac to escape, and about a drachm of the iodine solution is injected; rather more was used in this case, but, I think, less might have sufficed. The after-treatment may be said to consist in dressing with some bland substance as oil or lard cleanliness and care, so as to avoid local injury or irritation.

Prevention of the complete escape of the cerebro-spinal fluid I believe to be of the greatest importance; hence the use of collodion in this case, which answered the purpose admirably. The presence of this fluid is essential to the functional, if not the structural, integrity of the spinal cord and brain, and when it is allowed to drain away the child speedily succumbs. On this point I can speak from some experience; besides, soon after treating the case already published, a child was sent into the infirmary having a similar tumour in the dorsal region, which was punctured by the grooved needle, but not injected; the spinal fluid continued to exude, and from this alone the child sank and died. The idea

of using the collodion did not occur to me till too late, but this mishap caused me to direct my assistant to watch the case now given, and use the collodion if necessary, and it forms an apt illustration of the success of such a mode of closing the puncture. After the second puncture the collodion was not required

To my mind, the satisfaction attending the success of this case is enhanced by the circumstances of its being the second of two cases treated in precisely the same way; and these the only two that have been treated by injection with the glycerine solution, which I was induced to adopt, as being less diffusible than either a watery or spirituous solution.

How far this mode of treatment may be applicable to the cases in which the congenital defect exists above the lumbar region, I will not at present endeavour to define; but surely it is not too much to say that if by it we can save lives, when we have a lumbar tumour to deal with, we are not to be debarred from attempting to deal with those in the dorsal or cervical region, provided the extension of our line of operations be prudently conducted.*—*British Medical Journal.*

* This case was made the subject of some clinical remarks: and the child was shown to the Glasgow Medico-Chirurgical Society on the evening of May 3rd.

Medicine.

ON INCONTINENCE OF URINE IN CHILDREN.

By J. WARRINGTON HAWARD, F.R.C.S., Assistant-Surgeon to the Hospital for Sick Children.

Among the minor ailments of children, one of the most common and troublesome is incontinence of urine—an affection which, besides the misery and ridicule that it often brings upon those subject to it, not unfrequently, in an indirect manner, gravely interferes with their health. True incontinence of urine in adults usually indicates serious disease of the nervous centres, and has quite a different meaning and importance to that met with, as a rule, in childhood; wherefore I shall confine these remarks to the affection as it occurs in children and young persons. Although it is in these of much less serious import than the same symptom occurring in adult life, and depends, generally, upon much more remediable and transient causes, yet even here its effects are often very distressing. There are several cases on record, and I have myself seen two, in which the urethra has been cut through by a string tied tightly round the penis by boys anxious thus to prevent

the escape of urine during sleep. A troublesome eczema, and even considerable ulcers, may be produced by the constant irritation of the urine upon the skin: a condition which, when combined with any diseases requiring confinement to bed, often leads to serious bed sores. For this reason it is always desirable, when any surgical operation is to be undertaken on a patient with this affection, to first cure, if possible, the incontinence. I have already had a good example of this in a boy who came under my care for the treatment of talipes, which had failed owing to the occurrence of sloughs wherever any pressure was made on the foot, and the boy had, besides, two large and deep ulcers over both hips. I found that he was constantly wet from the involuntary escape of urine—a condition that I have observed is often associated with talipes, but which in his case was due to congenital phimosis. I at once circumcised him, and thereby cured the incontinence, and at the same time the tendency to sloughing; the sores on the hips began at once to heal, and the talipes was easily remedied. Besides these physical evils, incontinence of urine often brings upon the unhappy child a painful amount of persecution, depriving it of many of its natural pleasures, and perhaps materially interfering with its education.

The treatment of this affection, then, is not without interest, and its success will depend very much upon the accurate recognition of its causes; for these are manifold and various. And first, the cases may be divided into two chief classes: (a) those depending upon deficient nervous or muscular action; (b) those which have for their cause an excess of this action. The normal retention and passing of urine depend upon the proper balancing of the expulsive and retentive forces—that is to say, of the muscular walls and of the sphincter of the bladder. And this balance may be disturbed either by a want of sphincter power or an excessive expulsive power. Now the first of these—the want of sphincter power—is, I believe, in children, much the less frequent of the two causes, and is usually associated with delicate health, spinal curvature, talipes, or other paralytic affections; it is also the most troublesome to cure. The second and more common cause, the excess of expulsive power, occurs, on the other hand, in perfectly healthy children, and may depend upon the condition of the urine, or of the bladder, or upon some neighboring or eccentric irritation, and is of the two much the more easily remedied. There is no doubt also a certain, but I believe a small, number of cases which depend upon mere indolence and bad habit; and these must be treated by careful management, and, if need be, punishment; which, I may remark, should not depend upon the temper

or caprice of a nurse, but should be carried out in an intelligent manner.

In the cases due to want of sphincter power there is usually incontinence by day as well as by night; the water escapes very frequently and in small quantities, and the child is constantly wet; they are mostly associated with general nervous and muscular debility, and the expulsive power of the bladder is also weakened. These cases will be benefited by tonics, and especially by strychnia. I have seen excellent results from this remedy, but it must be persevered with and given in sufficient doses, and not relinquished if it does not in the first week or two produce much benefit; for it must be remembered that this class of cases always requires prolonged treatment. I have also seen benefit from the liquid extract of ergot, but this is less to be depended upon than strychnia; and several children, in which all other means have failed, I have cured at once by the application of solid nitrate of silver to the neck of the bladder, or the orifice of the urethra. These were all girls. The majority of cases, however, depend upon the second cause—an excess of nervous or muscular action. And in these the balance of expulsive or sphincter power is not, I believe, altered by the weakening of the sphincter, but by a spasmodic expulsive action which the sphincter is incapable of resisting. Thus, during the day, by voluntarily adding to the contraction of the sphincter, the effects of this expulsive spasm may be to some extent resisted, and the water is retained; moreover, as in some other spasmodic affections, these involuntary contractions occur less frequently in the day than during sleep, when the voluntary controlling powers are in abeyance. Again, the causes of this kind of incontinence are of an irritant nature, and such as to excite spasm rather than to weaken the sphincter; a view which is, besides, corroborated by the fact that the most effectual remedies are those which remove irritation and allay nervous and muscular excitement. It is remarkable, too, that, like chorea and epilepsy, the incontinence often ceases during an acute illness, but returns with convalescence. In boys, I think, by far the most common cause of this muscular spasm is the existence of congenital phimosis, which, from its retaining the secretion round the glans, the barrier which it offers to proper cleanliness, and the adhesions which it frequently leads to between the preputial mucous membrane and the glans, is a constant source of irritation. I have seen so many children mercilessly dosed with iron and other physic, when the incontinence was at once cured by circumcision, that I cannot avoid laying some stress upon the apparently obvious necessity of examining the urinary organs of all children suffering from incon-

tinence. And I would point out that in many of these boys a very moderate degree of phimosiſis will be ſufficient to cauſe incontinence; there is often an exceſſive length of prepuce, with but little contraction of the orifice; ſuch caſes are almoſt certainly cured by circumciſion. It muſt be remembered, however, that a bad habit often perſiſts after its original cauſe is removed, and therefore it is ſometimes neceſſary to take ſome pains to break theſe children of the habit of paſſing water during the night for the firſt week or two after the operation; as, for inſtance, by waking them a little later every night; meaſures which, though ineffectual before the operation, will, after it, ſoon be ſucceſſful. Many of theſe caſes, however, are at once cured by the operation without any further trouble. Another frequent ſource of irritation is the preſence of aſcarides in the rectum, and thus the incontinence may ſometimes be cured by a compound ſcammony powder, followed by iron. Fiſſure of the anus, though not common in children, may alſo cauſe incontinence of urine, and it is remarkable, ſometimes, how much of the inconvenience is referred to the bladder rather than to the real ſeat of diſeaſe. Of courſe this would be treated by the appropriate operation. Exceſſive acidity of the urine is another cauſe which, it will be remembered, depends uſually upon diſordered diſteſtion, and muſt be treated accordingly. Alkaline urine is occaſionally preſent in theſe caſes, and, when not aſſociated with cyſtitis, is generally found in hysterical girls. In theſe phoſphoric acid, chalybeates, and valerian, will be the moſt appropriate remedies.

Incontinence of urine is ſometimes the only ſymptom of ſtone in the bladder, eſpecially if the ſtone be a very large one, ſo that ſounding muſt not be omitted in our investigation into the cauſes of this affection. But there remain certain caſes, and of theſe not a few, in which we can diſcover no cauſe whatever for the affection; and theſe are they which are, as a rule, to be cured by belladonna. To prevent diſappointment it is needful to take care that the preparation of the drug is a good one, for ſpecimens of belladonna differ much in potency. The extract is, I think, the beſt form of giving it, and ſhould be adminiſtered in doſes commencing at one ſixth or a quarter of a grain, and, if neceſſary, increaſed till ſome dryneſs of the fauces or other phyſiological effects are produced; if then there is no improvement it is not likely to be beneficial. It matters little whether it is given during the day or only at night. Chloral has been highly ſpoken of as a remedy for this affection; but, though I have tried it pretty extenſively, I have not found it nearly ſo efficient as belladonna. Neither have I found bliſters, which are recommended to be

applied to the sacrum or umbilicus, of much use. Bromide of potassium and cantharides are also by some recommended, but have generally failed in my hands. I have recently been testing the efficacy of all these remedies, and my opinion of them is founded upon that experience. Nevertheless, they will some of them doubtless succeed when others fail; but of the cases for which no causes can be found, there are, I think, very few indeed which are not to be cured by belladonna.

QUEEN ANNE STREET, W., May, 1872.

—*The Lancet*.

ON DEATH FROM CHLOROFORM: ITS PREVENTION BY GALVANISM.

By THOMAS GREEN, F.R.C.S., M.D., Edinburgh; Consulting Surgeon and and late Senior Surgeon to the Bristol Royal Infirmary.

Death from chloroform is now an announcement unhappily appearing so often in the medical journals, that it becomes the duty of those who have seen much of its use to lay the results of their experience before the profession; the more so, if they know, or think they know, one remedy more than another likely to arrest the mortality from that drug.

Ether, chloroform, and other anæsthetics, have been in constant use at the Bristol Royal Infirmary since their first introduction into notice. Three deaths from their use have occurred at that institution during this period.

Case I.—The first occurred in the practice of my colleague Mr. Harrison, then senior surgeon to the Infirmary. Chloroform was administered to an elderly woman in the ward, before bringing her into the theatre for operation. A second drachm of chloroform was being inhaled, when, after a few stertorous respirations, the pulse and breathing suddenly ceased. Mr. Hore, the house-surgeon, immediately employed the usual means. The surgeons were sent for; and, when they saw the patient she appeared dead. Galvanism was then tried; it "produced some convulsive efforts of the respiratory muscles," but animation was not restored. (*Association Medical Journal*, 1861, p. 109.)

Case II.—The second case occurred in the practice of my colleague Mr. Prichard. Chloroform was given to an elderly man on the table in the theatre. After a short inhalation from the first drachm, a few convulsive respirations were followed by a sudden stoppage of the heart's action and of breathing. We were all in the room at the time. Galvanism, artificial respiration, etc., were at once tried: the first caused strong contractions of the face and trunk, but had not the slightest effect on the heart; the latter

was kept up for nearly half an hour through an opening in the trachea, but without any effect on the heart. In this case, paralysis of that organ was so complete that all means failed to excite its contractions, and death was the result. Those who have not seen a spectacle of this kind can hardly realise what a painful and depressing thing it is to look upon. On examination after death, the "external surface of the heart was found covered with fat:" and "the muscular structure generally was pale, and contained much fat, deposited in rows among the fibrille." (*British Medical Journal*, 1858, p. 207.)

The third case occurred in the out-patient room of the Infirmary, and is reported by Dr. Ludlow, the house-surgeon. The first two cases I witnessed: but I saw nothing of the last. Since the second case, no death has happened in the operation room. I have now to mention some cases where recovery took place, under circumstance quite as bad as those before related.

Case III.—The following case occurred at the Infirmary. I had operated on a boy for stone, under chloroform. The operation was over: the boy was untied and about to be taken to his ward; all present had left the room, except Mr. Webster (then a pupil), myself and the nurses. Seeing everything safe and well, I left the table, and was going into the consultation-room, when Mr. Webster called after me to say that the pulse had stopped. On turning round, I found the boy deadly pale and pulseless, and his breathing stopped. The galvanic battery was in the theatre ready for use, and it was instantly applied. After a few seconds, both pulse and breathing returned, and the patient entirely recovered. It is impossible to imagine anything more decided than the effect of galvanism in this case: and it is the more remarkable, as the pulse ceased to beat some time after chloroform had been discontinued.

Case IV.—An elderly man was brought into the theatre for operation by Mr. Prichard. A small quantity only of chloroform had been given, when the pulse suddenly stopped, and the man appeared dead. The galvanic apparatus was near, and was instantly used. A deep and rapid inspiration, succeeded by a strong noisy expiration, like a loud groan, was the immediate result: and at the same time he started up into the sitting posture. The circulation was at once restored, and he entirely recovered. All these things occurred in a little more time than it takes to describe them, one thing followed another so rapidly.

Case V.—The next case occurred in the practice of my much respected colleague, the late Mr. Ralph Bernard. An elderly woman was placed on the table to have the trachea opened for disease of the larynx. The veins of the neck were large and

numerous, and a good deal of blood escaped; hence Mr. Bernard was obliged to proceed slowly in exposing the trachea. Perhaps half an hour was occupied in this way; when the pulse suddenly stopped, and to all around she appeared dead. Galvanism was instantly applied, with the same result as in the last case. Circulation and respiration were immediately restored. The trachea was then opened in the usual way.

Case VI.—The next case occurred to myself. A boy was on the table for operation. A small quantity of chloroform was given, when suddenly the pulse became hardly perceptible, but did not stop entirely. Galvanism was at once used by Mr. Crisp of Swallowfield, then house-surgeon, and in an instant recovery was the result.

Case VII.—The next case was that of a girl placed on the table for amputation of the leg by Mr. Bernard. Chloroform was being given, when suddenly the pulse stopped. Galvanism was at once used, and instant restoration was the result. She was taken back to the ward. The next day half a tumbler of brandy was given her. She was brought into the theatre, the tourniquet slightly screwed; and the leg was taken off by Mr. Bernard. When again in her ward she did not know that her leg had been removed.

The last death from chloroform occurred in 1858. Since that time, no fatal case has happened in the operating theatre. The third death took place in the out-patient room.

From so many fatal and nearly fatal cases happening in one institution, it may be thought that the agent was not properly administered—perhaps not sufficiently diluted. Chloroform has been generally given by the house-surgeon: a drachm placed on a sponge over the mouth and nose, and taken off from time to time to allow fresh air to enter; the finger being kept constantly on the pulse. No accident has now happened for some years, so that it may be inferred that this method of administration is safe. The last five cases here related can leave no doubt as to the fact that galvanism saved life in each of them; that the pulsations of the heart stopped in an instant, and were as instantly restored by this agent. In all the recorded cases which I have met with, there are not to be found five successive cases similar to those mentioned—that is, where restoration was instantaneous. Cases are recorded where the pulse and breathing suddenly stopped, and were restored by artificial respiration. The most recent is related by my friend Mr. Clover; and, from his experience in the administration of anaesthetics, there cannot be found a more accurate authority than he is. Mr. Clover relates a case where, after chloroform has been used, the pulse and breathing suddenly stopped, and were

restored by carrying on artificial respiration for about a minute (*British Medical Journal*, 1871, vol. ii, p. 33). I would, however, suggest to Mr. Clover that the minute thus spent might make the difference between life and death. One of the best cases I know, where artificial respiration succeeded in instantly restoring the action of the heart after it had suddenly ceased, occurred in the practice of Sir William Fergusson. Dr. Snow was administering chloroform to a "tall, thin, elderly lady, with a small and feeble pulse," (a bad subject for chloroform, evidently having a very weak heart); suddenly the breathing ceased and the pulse could not be felt. Sir William, with the promptness and readiness for every emergency which belongs to that accomplished surgeon, at once applied his mouth to that of the patient, and made a strong expiration, which expanded her chest fully, and immediately the heart began to beat. (Snow on "Chloroform," p. 260.)

These cases show the value of artificial respiration; but it has failed so often in the fatal cases recorded that we cannot place much reliance on it, even when air is blown in from the mouth of another. Amongst other reasons is this: the air goes, not into the lungs, but through the œsophagus of the stomach. This has happened in the attempts to restore animation after drowning. Dr. Marshall Hall's plan has succeeded in restoring patients narcotised by chloroform. The effect of artificial respiration is proved by a simple experiment. In an animal just killed, if air be at once forced through the trachea, the lungs immediately begin to act and the heart to pulsate. If the ribs be cut at each side, and with the sternum thrown up, the entire process is brought into view. This experiment is instructive, can be easily performed, and is painless to the animal. Amongst other means, quickly slapping the face with a wet towel has been used, and will often succeed in less urgent cases where the pulse is becoming feeble, but it cannot be relied on when it has suddenly stopped. The same may be said of strong ammonia placed under the nose.

An important communication has been made by Mr. Brown, of Haverfordwest, (*British Medical Journal*, 1871, vol. ii, p. 13). He agrees with the most accurate observers that death from chloroform is caused by "paralysis of the heart;" restore motion to that organ and the patient is safe. He has little faith in artificial respiration, and dragging out the tongue he truly describes as an "idle occupation." Mr. Brown recommends that no time should be lost in either of these proceedings, but that the "brain should be roused by hanging down the head." He reports five cases where, after chloroform, the heart suddenly ceases to pulsate; the head was immediately lowered to the level, or below the level, of

the body; breathing and circulation were at once restored. In fact, if blood be sent to the brain, the heart is at once excited to action. This, we know, is successful in syncope from loss of blood, etc. Altogether, Mr. Brown's paper is well worth attentive consideration from all who have to deal with anæsthetics. The consideration of the cases which have occurred at the Bristol Infirmary has left a strong impression on my own mind, and, I believe, on those who witnessed them, that galvanism is the most powerful agent which we possess to restore animation when suspended by chloroform or any other anæsthetic.

The heart suddenly stopped in seven cases; two died and five recovered. In the latter its functions were instantly restored by galvanism. It may be said that galvanism was used in the two fatal cases; but in the first other means were tried, and some time had elapsed before it was employed; in the second, it was used at once and failed. The state of the heart was, however, quite sufficient to explain its failure. Degeneration of that organ from fatty deposit was so extensive that, when its vital contractions ceased, no artificial stimulus could restore them. Galvanism will excite muscle to contract, but cannot impart motion to "rows of fat." In the five latter cases here reported, the stoppage of all motion in the heart and lungs was so complete, and the restoration so instantaneous, that no doubt can remain as to the value of the agent employed.

Electricity is the most powerful agent with which we are acquainted for exciting muscular motion even after death. Dr. Ure's experiment is well known, when by electricity he brought on strong muscular contractions in a man who died by hanging an hour before the experiment. Death from chloroform is caused by the cessation of muscular action, by paralysis of the heart. If electricity be the most potent agent known to excite muscular motion, it follows, not alone as a physiological fact, but a logical truth, that electricity in some form or other must be the most powerful agent known to restore animation when suspended by chloroform. Galvanism has often been used after those accidents, and is said to have failed. Seven cases in which it proved unsuccessful are reported in Dr. Snow's last edition of his work. The same story is to be found in all of them; other means were used, the apparatus was sent for, adjusted, and tried; of course it failed, it came too late; to be successful it must be ready for instant use—on that depends its success. Seconds or minutes make the difference between life and death. The truth of this is so strongly impressed by his own mind that I have not for many years ventured to operate under chloroform, either at the infirmary or in

private, without having the galvanic apparatus ready for instant use; and I must express the opinion that chloroform should never be administered without the same precautions being taken. Deaths from chloroform are now so frequent (it has been said one in a week), and we are told that many deaths from this cause are never reported at all, that the time is not far distant when the public safety will demand some inquiry into the use of this deadly agent, more comprehensive than anything hitherto done in that way. This inquiry may be made by any competent tribunal—say, a joint committee of the Colleges of Physicians and Surgeons, and it could not be in better hands, assisted, if they wish it, by men who have given special attention to this subject—such as Mr. Clover, Dr. Richardson, etc.

The inquiry should embrace several matters: first, whether any and what precautions should be taken before the use of chloroform or any other anæsthetic; next, to ascertain the best and safest of them, and the best and safest means in which they can be administered; and, lastly, the best and surest means to prevent fatal accidents from their use.

None can say what the result of that inquiry will be, if ever made; but I must express the belief that it will prove to be a mistake to give chloroform to a person kept some hours without food, without some support to nerve-power, and brought to an operation under a dread of its consequences—it may be, shivering cold—brought from a warm bed to a cold room. For several years I have always given a fair amount of fluid nutriment, and a full amount of stimulant, not long before any operation under chloroform. Next, it may prove that more precision must be used in its administration. Dr. Snow and Mr. Clover tell us that the proportion of chloroform to atmospheric air should not exceed five per cent. Mr. Clover's apparatus has been called cumbrous and inconvenient, but it attains a precision in this matter which no other contrivance has hitherto done; and I believe that no fatal case has occurred in the large number of operations in which it has been used by him, amounting to some thousands. Lastly, I feel some confidence that inquiry will prove galvanism to be the best and surest prevention against fatal accidents from chloroform, etc.

Before concluding this paper, I think it not right to let the opportunity pass without expressing the strongest dissent from the doctrines of Mr. Lister on the subject of these remarks. He has called the use of Mr. Clover's apparatus "a harmless luxury." (*British Medical Journal*, 1871, vol. ii., p. 117.) Some might call his own strongly expressed advice, to draw out the tongue in

cases of accident from chloroform, a "harmless" crotchet, or, as Mr. Brown calls it, an "idle occupation"; but, when taken in conjunction with the following statement, deliberately written for the profession, it becomes a far more serious matter. He writes as follows: "The very prevalent opinion that the pulse is the most important symptom in the administration of chloroform is certainly a most serious mistake; as a general rule, the safety of the patients will be most promoted by *disregarding it altogether*, so that the attention may be devoted almost exclusively to the breathing." From my own limited experience, and from the recorded opinions of nearly all the best authorities in this and other countries, that "paralysis of the heart seems to be the most frequent cause of death after chloroform," (*American Journal*, 1871, p. 437), I can come to no other conclusion than that Mr. Lister's teaching is more than a serious mistake; that in practice it will be found a fatal error.

Mr. Lister has also written as follows: "When Mr. Clover virtually recommends medical men generally to follow him in abstaining from this practice (drawing out the tongue), he has given about as pernicious a piece of advice as can well be given with reference to the administration of chloroform." (*British Medical Journal*, 1871, vol. ii, p. 117.)

I know enough of Mr. Clover and his professional character to be able to assert with confidence that there is not a surgeon in London who would endorse the statement that he ever has given, or could give, "pernicious advice" on the use of chloroform, or on any other subject.

The use of chloroform is a serious business, involving, as it does, the issues of life and death—how serious few can realise, except those who have seen one or more fatal cases; and sure I am that when the heart suddenly ceases to beat after its administration, those who rely on pulling out the tongue to save life, will have to witness that sad sight when a person lies dead before them, who but a few minutes before was in full possession of life and strength.

P.S.—When galvanism is employed, the rotatory battery now in general use answers the purpose well; it is portable, always ready, and easily worked. One pole should be applied to the neck, and the other over the lower ribs on the left side.—*British Medical Journal*.

MALINGERING DETECTED BY FARADISATION AND THE USE OF NITROUS OXIDE GAS.

By JULIUS ALTHAUS, M.D., M.R.C.P., Physician to the Infirmary for Epilepsy and Paralysis.

In November last I was consulted by the secretary of a workingmen's benefit society with regard to the case of one of the society's members, who professed to have lost the use of his left arm, in consequence of an accident which he had had three years previously. According to the society's rules, the sum of £100 is paid to members who are permanently incapacitated for work by disease or accident. The patient had had a fall from a considerable height, and asserted that ever since he had been unable to use his arm. He had been admitted into a provincial hospital, where he remained for three months, and where (to use his own words) "the surgeon tried as hard as he could to cure him," but failed. In course of time the patient, who was known not to have done any work since the occurrence of the accident, applied to his society for the hundred pounds owing to him; and I was then requested to give an opinion whether the patient was permanently or only temporarily disabled.

The claimant was a tall, powerful man, of determined countenance, and evidently considerable force of will. He professed to be unable to undress himself, and had, therefore, to be assisted when the helpless limb was bared for examination. I found that the temperature and the bulk of the left arm were in all its parts quite equal to those of the right. The limb was held in full extension, and drawn to the body; while the fingers were somewhat tightly fixed. On endeavoring to flex the forearm and to supinate the hand, considerable resistance was encountered; and, when additional force was used for effecting this purpose, the patient called out with pain, and said he could not bear the manipulation.

Seeing this condition of the limb, only three pathological conditions could be suspected, viz., paralysis with contraction, ankylosis, or dislocation—provided always that the patient was sincere. In peripheral paralysis owing to injury of the motor nerves of the part, which is the only form of paralysis that could be thought of in this case, there is rarely any very great amount of contraction, since the paralysed limbs are mostly found flabby; and if the case be of long standing, the muscles are wasted, and the temperature is considerably diminished. But as these clinical signs, although of value, are yet not invariably present, I employed a test which gives absolutely decisive results in such cases, and enables us at a glance to decide the presence or absence of peripheral paralysis—viz., faradisation. It has been shown by the

concurrent testimony of all recent observers who have investigated this subject, that, in peripheral paralysis caused by injury to the motor nerves, the muscles animated by those nerves completely lose their *faradic* excitability, while their *galvanic* excitability may be preserved, or, under certain circumstances, even increased. If, therefore, in the present case, the deltoid, triceps, biceps, and the other muscles of the useless limb, could be made to respond by contraction to the faradic current, it would be rendered evident that there was no paralysis owing to injury of the brachial plexus or any of its branches.

On using faradisation, I found that all the muscles of the arm and hand responded readily to the current by contraction of their fibres; yet, curiously enough, the arm of the patient did not execute those movements which are generally produced by such an application. Something evidently resisted the displacement of the bones; and, when I looked at the powerful determination visibly expressed in every feature of the patient's face, his hard stare, his contracted brow and lips, I could not help feeling suspicious that this something might be the patient's own volition. The influence of faradisation being irresistible if a sufficiently strong current be used, I increased the power with which I acted, in order to overcome any possible resistance on the part of the patient; but the latter called out so lustily, saying that he could not bear the pain, that I was obliged to desist. Enough, however, had been ascertained for enabling me to eliminate one of the three pathological conditions which could give rise to the complaint of the patient.

I now informed the secretary that, although I had satisfied myself that there was no paralysis, yet it was impossible for me to give a certificate concerning the exact nature of the affection from which the patient suffered, unless he were previously placed under the influence of an anæsthetic. All parties having consented that this should be done, I procured the assistance of Mr. Clover, who on the following day administered nitrous oxide gas to the patient. The latter was rapidly rendered insensible; and I could now freely move the arm in all directions, there being neither dislocation nor ankylosis. As soon as this was ascertained, the influence of the anæsthetic was withdrawn; and the patient, who recovered himself in a few moments, was informed that his case was not nearly so bad as he had imagined, and that he would certainly recover the use of the arm under proper treatment. I gave a certificate to the effect that the patient suffered from a painful affection of the shoulder-joint, which would yield rapidly to subcutaneous injections of morphia or a judicious use of galvanism; and that there was neither paralysis, nor dislocation, nor ankylosis, seriously to interfere with the use of the extremity. The claim was therefore not allowed.—*British Medical Journal*.

MEMORANDA OF TREATMENT OF CASES OF NERVOUS
DISORDER.

By J. LOCKHART CLARKE, M.D., F. R. S.

INCOMPLETE HEMIPLEGIA OF THE RIGHT SIDE, WITH PARTIAL APHASIA.

A lady who had come from the country to see her daughter found, in the course of a few days, that she was gradually losing the use of her right hand and arm. The first occasion on which she experienced this weakness was, that one day, after beginning to write, she found herself unable to continue. Very shortly afterwards, she found that she was losing power in the right leg, so that she had great difficulty in walking; she also felt a sensation of "pins and needles" in the right hand, but not in the foot; at the same time she complained of great loss of memory. She was frequently quite unable to recollect many of the words she wished to use; and sometimes she transposed her words, or used wrong ones. Her articulation was very indistinct; but she could protrude her tongue and move it in any direction. There was a dull "heavy" pain on the left parietal region of the head, with a sensation of "creeping or drawing up" of the scalp, and some deafness of the left ear. There was no cardiac murmur, or any other sign of heart disease.

Her general health was much deranged. Her tongue was loaded; her breath offensive; her appetite was gone; and she complained of nausea and flatulence, with a sensation at the epigastrium "as if something wanted to be removed." Her skin was dirty-yellow; her bowels constipated; but her urine was clear and without albumen. She was ordered a mild aperient, a blister behind the left ear, and the following pills.

R Hydrarg. subchlor. gr. vj; ext. hyoscyam. ʒijss. Ft. pil. xij.
One to be taken night and morning.

At the end of a week I saw her again, and found her decidedly improved. After two or three days the pills produced brisk purgation. She was ordered to repeat the blister and continue the pills. At the end of another week the improvement was still more marked. Her memory was much better, her articulation more distinct, her right arm stronger, and she could walk without much difficulty; but she still complained of dull pain, and "drawing up" of the scalp on the left side of the head. The bowels had acted about twice daily, and the evacuations on passing caused a scalding sensation. The blister was repeated, and the pills continued. At the end of the third week she was nearly well; all that she complained of was flatulency, and the creeping or drawing

sensation in the scalp of the left side. Her skin had lost its previously dirty-yellow colour, and her appetite was keen. She was ordered to discontinue the pills, and to take some rhubarb, ammonia, and æther in peppermint water. A fortnight afterwards, she returned to the country quite well.

64. Harley Street, W., June 1872.—*British Medical Journal*.

RUPTURE OF THE HEART.

By W. WYNN WESTCOTT, M. B. Lond., Martock.

S. V., aged 65, married, a carpenter, and a man of good general health and strength, in the summer of 1872 was struck on the forehead by the accidental recoil of an iron bar. This inflicted a wound which injured the temporal artery, and was followed by very free hæmorrhage. Last December, when returning home intoxicated from a neighbouring village, he fell over a bridge and struck his forehead against a sunken stone, inflicting a wound almost identical in position with the former. This wound also caused free hæmorrhage, which was stopped with considerable difficulty. Although not an habitual drunkard, he had drunk freely for many years, and was much shaken in health by the latter accident.

On February 25th he was at a public house during the evening, in his usual health, and drank moderately, returning home sober. The next morning he got up feeling unwell, and walked to my surgery, about two hundred yards. As I was not up, he walked home again, and at 9 o'clock I went to see him. He was sitting by the fire, looking weak and ill; and presented very much the appearance of a man who had been intoxicated overnight. He complained of pain at the epigastrium and in the region of the stomach, of want of appetite, weakness, and chilliness. The bowels were constipated; pulse weak, but regular; tongue foul. I ordered two tablespoonfuls of the following mixture to be taken three times a day: ℞ spt. ætheris sulph. ʒij; tinct. calumbæ ʒij; magnesie sulphatis ʒvj; aquæ q. s. ad ʒvj.

At 8 P. M., he appeared very much in the same state, but complained of nausea and severe pain over the stomach; yet he was lying quietly in bed, with features calm and pale. An hour later, he vomited much bilious matter and semi-digested food. The sickness then went off, and he took a basin of gruel. He expressed himself as feeling better, and his wife went to bed. In a short time, he roused his wife, asking her to make him some peppermint-tea. She did so, and he drank the tea. His wife then returned to bed, between 2 and 3 A. M. Some time later, he

sat up in bed, put out the lamp which had been left burning by the bedside, and lay down again. Within ten minutes, he sat up, complained of feeling faint, and again lay down. His wife heard a slight rattling in his throat, upon which she got out of bed, struck a light, and found him dead.

Post Mortem Examination, thirty-one hours after death.—The body was well nourished; the flesh firm. There was a thick layer of fat. The expression of the face was very much altered. There were two linear depressed scars over the lower part of the sternum. The stomach was congested, especially at the cardiac end. The liver was healthy; the spleen and kidneys were congested. The sternum was carefully raised, without injury to the pericardium, which projected and seemed full and tense. The lungs were pale and normal. The pericardium was opened longitudinally, and about half a pint of serum escaped, leaving a teacupful of soft dark clot. The surfaces of the pericardium were healthy. The heart was removed entire; and a very considerable deposit of fat on the surface and in the grooves of the organ was noticed. On the wall of the left ventricle, near the anterior border, were three longitudinal fissures: the two upper and smaller ones extended through the pericardium and fatty layer only; the lowest and most anterior extended through the entire thickness of the wall, and measured rather over a quarter of an inch in length, and admitted a goose-quill easily. Internally, all the cavities were healthy, except the left ventricle; and all the valves appeared normal. The left ventricle was opened through, the septum of the ventricle, and was found to contain soft dark clots, interlaced with the chordæ tendinæ and columnæ carnæ. The clots were gently washed away by water; there was then seen several of the muscoli papillares, ruptured, and their free ends covered by slight clots; and, near the anterior border, a long ragged zigzag fissure, three-quarters of an inch in length, corresponding to the principal external rupture; its edges were also covered by small clots, but there was no continuous clot in the course of the wound. Several portions of the muscular substance were examined by the microscope, and were found to have undergone fatty degeneration.—*British Medical Journal*.

Midwifery.

CONCEALED PRÆ PARTUM HÆMORRHAGE.*

By JOSHUA PARSONS, Esq., F.R.M.S.

The three cases which I am about to detail have occurred to me at long intervals in a tolerably extensive midwifery practice of many years duration; and, although they belong to a class well recognized and often described by writers on the subject, yet I have found in conversation that many brother practitioners of intelligence and experience, not having had their attention specially directed to such cases, possess but vague ideas of their nature and treatment. There are, however, few accidents interfering with the even tenour of natural parturition more distressing to witness, or calling for more clearness of diagnosis and decision of treatment on the part of the medical attendant, than those of which I am about to speak. It has, therefore, struck me that a record of these three instances, though not otherwise very interesting, may form a footprint for whose guidance some perplexed and anxious brother may be thankful.

Case 1 occurred in 1840. The patient was the wife of a weaver, a strong and healthy primipara, arrived at the seventh month of gestation. On February 8th she was seized with faintness and a feeling of painful distention of the abdomen; but, as no labor-pains occurred, no treatment was adopted by the midwife beyond keeping the patient in bed. As, however, the pallor and distention increased, I was summoned on the 12th, and found the woman exhausted and exsanguined to a remarkable degree. Upon examination, although there had been no pains or discharge, the os uteri was flaccid and dilatable, the membranes unruptured, and the face presenting. I had at the time no idea of the nature of the case with which I had to deal; but possessed with the dread instinctive in an accoucheur of seeing my patient die undelivered, and miles away from instruments or professional assistance, I introduced my hand into the unresisting uterus, and immediately delivered the small dead fœtus by the feet. Finding the abdomen but little diminished in size, I thought there was another child to be born, and plied the woman freely with brandy and ergot; and

* Read before the Bath and Bristol Branch.

after a while had the satisfaction of finding the placenta thrown off. The cause of danger and perplexity then became evident, for I removed from five to seven pounds of old black coagula. The uterine surface of the placenta showed that it had been detached over its larger part. The woman slowly recovered to a great extent, but was ever afterwards an invalid and remarkable for her extreme pallor.

Case II occurred on December 4th, 1860, to one of those unhappy individuals whose bairntime (to use a Scotticism) was a catalogue of disasters. She had arrived at the eighth month of her eleventh pregnancy, when she was, at 4 a.m. of the morning mentioned, while lying quietly in bed, seized with sudden deadly syncope. As she lived close to my house, I saw her in a few minutes, and, recognising the nature of the case, I examined and found the head presenting and the funis prolapsed. Being thus able to assure myself that the child was dead, and knowing from former experience that to deliver the patient with forceps was a work of time and difficulty, I did not hesitate to resort immediately to craniotomy, and, after giving ergot, to remove the placenta and a large mass of coagulum which appeared to be of recent formation. The patient recovered, and had children subsequently.

Case III.—This patient is the wife of an innkeeper living four miles from my house, and was expecting her seventh confinement in November last. For four days she had been observed to lose her colour, and complained of hardness and tension of the abdomen, but had continued to move about and attend to her household duties. On the afternoon of the 19th she fell suddenly in her kitchen, and was for a long time unconscious. When she was carried to bed, a slight discharge of blood was observed, and I was sent for, being told to come directly, as she had had a fit. When I arrived she had become conscious, but was tossing about faint and pulseless, with no labour-pains, but a slight sanguinous discharge from the vagina. On examination, I found the os about the size of a shilling, occupied by distended membranes, but very hard and resisting. I immediately sent to my son, Dr. Parsons, asking him to bring various instruments, and intending, as the urgency of the case seemed increasing every moment, to deliver as soon as he arrived. As, however, by reason of distance, a considerable time must necessarily elapse, I determined to do something; and so I ruptured the membranes, and gave at once two drachms of the liquid extract of ergot, repeating the dose in half an hour. Fortunately these means were successful in controlling the hæmorrhage; and on my son's arrival the aspect of affairs had so much improved that we considered it right to wait a while and

watch for the issue. About midnight a labouring-pain came on, and the woman was delivered naturally about 2 a.m. The child had been evidently dead for some days, and the placenta was followed by a great gush of fluid blood and many pounds of old clot. The woman is still suffering from exhaustion and bloodlessness, but will, I trust, ultimately recover.

The cause of the accident of which I have been speaking is, to me, obscure. In neither of these cases had there been any over-exertion, nor had either of the patients been exposed to any of those shocks of body or mind which we are accustomed to see followed by hæmorrhage and premature birth. In the first and third cases, the pallor and painful distention showed that a moderate discharge of blood had been taking place between the placenta and uterine walls for some days, before a sudden and unaccountable increase occurred and produced the alarming symptoms already described. Although the issue was fortunate in these instances, yet I need not tell you it is by no means always so, two or three fatal cases having occurred within my own knowledge. In the last case, my distance from home led me to adopt measures which fortunately proved successful; but, looking at the tendency to sudden increase of symptoms, I would not voluntarily run the risk of delay, but should make it a rule, where I had reason to believe that subplacental hæmorrhage was going on, to induce labour and complete the delivery of the patient by the speediest method suitable to each particular case.

I do not know any condition likely to cause difficulty in the recognition of this accident. In the second case, the sudden and complete collapse and violent pain might at first have led to a supposition of ruptured uterus or abdominal pregnancy; but the round, well-defined uterus, hard as a cricket ball, and perhaps the absence of tenderness, would at once clear up the difficulty. In neither case did I observe any diseased condition of the placenta likely to account for its separation from the uterus, though the appearances plainly indicated that such separation had taken place to a very large extent.—*British Medical Journal*.

Canada Medical Journal.

MONTREAL, JUNE, 1872.

"THE CANADA MEDICAL JOURNAL."

This number completes the eighth volume of this periodical, and although this journal may not be discontinued, yet this closes the present series. This has been brought about by personal differences between the editors. The publishers of the CANADA MEDICAL JOURNAL considered it advisable to stand aloof from all party feeling; they therefore intimated to the editors their determination to stop the publication, leaving them to resuscitate a new work or works, which will stand or fall by their own merits.

All debts due the old journal are requested to be paid to Dawson Brothers, Great St. James street.

The publishers of any new undertaking will make known the terms of subscription through their own columns.

REPORT OF THE DEEP-SEA DREDGING EXPEDITION TO THE GULF OF ST. LAWRENCE, BY J. F. WHITEAVES, F.G.S.

For some years past exploration of the sea-bottom, more especially on the coast line, has been followed up chiefly in reference to the habits of fish which are used for the food of man, and which, when taken, enter largely into the commercial enterprise of numbers of the inhabitants of countries. These explorations have assumed a practical character, the object being to preserve valuable fisheries from destruction, by suggesting measures for saving from injury feeding grounds which otherwise would be seriously damaged, thereby driving the finny tribe to seek sustenance in other localities. The fisheries of our gulf have for centuries been used by the inhabitants of the neighboring Provinces and the Atlantic States of America as one means of commercial enterprise. And in view of the value of those fisheries we are surprised that the Government did not, at an earlier period than 1872, ascertain or inaugurate explorations having such an important bearing on the preservation of those fisheries.

Mr. Whiteaves, whose report is before us, fully alive to the

importance of these researches, commenced, in 1867, an exploration of the sea-bottom of Gaspé Bay. At this period it was purely a scientific investigation, and as such was conducted by Mr. Whiteaves, unaided by the pecuniary resources of the country, necessarily cramped, and without efficient aid, the depths examined were not over some fifty fathoms.

The following year Mr. Whiteaves visited England, and his specimens of foraminifera, sponges, polyzoa, and molluscs, attracted the attention of naturalists in London. He returned to the work in 1869, having procured, while in England, improved dredging apparatus. On this occasion he examined two cod banks, stretching between Cape Gaspé and Cape Rosier village. His investigations were highly gratifying, and, feeling the importance of the work, the following year he brought the subject up prominently before the Natural History Society of Montreal. His views were endorsed by Mr. Principal Dawson, and that gentleman made interest with the Minister of Marine and Fisheries, who at once placed the Government schooners at the disposal of any expedition which should be started for the purpose of deep-sea dredging.

Dr. Dawson requested Mr. Whiteaves to undertake the superintendence of the expedition, as representing the interests of the Natural History Society of Montreal, and Mr. G. T. Kennedy went with him, representing McGill University. The latter gentleman was obliged to return home, and Mr. W., in consequence, worked single-handed.

The report consists of three parts: In the first we have an abstract of the diary kept by Mr. Whiteaves while employed on board the schooners "La Canadienne" and the "Stella Maris." This extends over two months, from the 6th July to the 22nd of August, 1871, during which period twenty-seven hauls were made, in depths varying from less than 50 up to 250 fathoms.

In the second part we have a summary of the zoological results obtained during the expedition, and here we learn that Mr. Whiteaves has not altogether completed the investigation of all that he secured. He gives, however, a complete list of the novelties among the Echinodermata and Mollusca, which he found together with such notes on other groups as the time at his disposal permitted. Mr. Whiteaves estimates that upwards of one hundred species of marine animals were collected, which belong exclusively to the deep-sea in Canada, and he states that from low-water mark down to fifty or sixty fathoms, sea-weeds, both large and small, abound, and that animal life is abundant and prolific; beyond this, however, the sea-weeds are rare, and in the deep-sea mud the ani-

mals differ from those of more shallow water, and, furthermore, are somewhat less numerous, both individually and in species.

In Part III we have practical suggestions and concluding remarks. In speaking of the food of fishes, Mr. W. divides the feeders into two groups: those that feed at the surface, as the herring and mackerel, and those which feed at the bottom, as the cod, halibut, and all flat fish. From the observations made after an examination of the stomachs of over five hundred cod-fishes taken in Gaspé Bay, as also on the north shore of the St. Lawrence, Mr. Whiteaves concludes that the cod very rarely feeds at greater depths than fifty or sixty fathoms. A list of what cod feed upon is given, judging from the contents of the stomachs of those fish when examined.

In examining the cod banks, or, as the Gaspé fishermen call them, reefs, Mr. Whiteaves was amazed at the number of the minute shells of the foraminifera found in the sand at the latter, and he suggests that probably these microscopic animals form the food of other marine animals which are themselves devoured by the cod, and which may account for the presence of the cod in such numbers at these places. Attention is drawn to the fact that the cod is subject occasionally to the attack of parasites. Tape worms are sometimes found in the intestines, and nematoid worms were observed encysted on the outside of their livers. Halibut and flounders appear to feed largely upon molluscs obtained in deep water, from 100 to 250 fathoms.

Mr. Whiteaves suggests that if Americans are to be allowed to fish in Canadian waters "the custom (said to be practised by them) of splitting the fish caught at sea and throwing the offal overboard on the fishing ground, should not be permitted." This would have a tendency, it is thought, to damage the cod banks and drive the fish away from their accustomed feeding ground. Attention is drawn to the oyster and to the want of care in preserving from destruction that valuable bivalve. It is recommended to offer a premium for the best essay on artificial oyster culture, and to hold out inducements to persons engaged in the artificial culture of oyster-beds, by affording them legal protection. Attention is drawn to the fearful ravages of the *Teredo* or ship worm, and another species of burrowing crustacean, of the genus *Limnoria*, specimens of which Mr. W. secured in a piece of waterlogged wood, and, furthermore according to Mr. Principal Dawson, it would appear that the wharves and harbors of Nova Scotia and New Brunswick have been greatly damaged by this species of *Teredo*.

We notice in the report one item which attracted our attention.

Mr. W. observes: "It may be mentioned that the cost of the outfit, and extra travelling expenses, amounted to about \$130, of which the Natural History Society of Montreal paid \$94.28, and myself the remainder." We cannot think it possible that an undertaking attended with such results as Mr. Whiteaves' has produced will be allowed to go unremunerated. Surely the Government are able to afford the expenditure of a few dollars in work generally acknowledged to be advantageous; in fact, absolutely necessary; and we do hope that the money already expended by individual enterprise will be voted, together with an appropriation to the scientist for his loss of time. We believe that a sum of \$500 has been voted this year for the work, which, we think, will barely pay the expenses of the expedition, and leave nothing for the pay of the scientific head who conducts the operations. Science is all very well in its way, but we trust, for the honour of the country, that the Hon. Peter Mitchell will bring the matter before Parliament and see that a liberal reward will be made to the gentleman who has inaugurated a work fraught with such important consequences, full of interest in its purely scientific results, and by no means devoid of practical utility."

Medical News.

ACTION OF DIGITALIS.

M. Gourvat (*Gazette Medicale*, 1871, Nos. 26, etc., and 1872, 1, 2, 4 5) finds that moderate doses of digitaline given to frogs paralyze the motor nerves of voluntary muscles; and larger doses destroy the irritability of the muscles themselves. Involuntary muscular fibres appear to be stimulated by it. Moderate doses cause a transient contraction of the arterioles; large doses cause a longer contraction. In both cases the contraction of the arterioles is succeeded by paralysis and dilatation. The contraction is caused by the action of the digitaline on the vasomotor nerves, and not on the walls of the arterioles themselves. The beats of the heart are rendered stronger, slower, and more regular, by moderate doses. The arterial tensions is increased. The retardation of the pulse is due to the increase in the arterial tension, and is proportioned to it. The contraction of the arterioles lessens the secretion from the skin, mucous membranes, and glands, except the kidneys, the urine being increased.—*Medical and Surgery Reporter.*

CURE OF COLDS.

A Berlin correspondent of the London *Druggists' Circular* says:—The dreary days of winter have passed away, and as I hope, colds and catarrhs have left likewise, and if I now mention a good cure for these enemies of our winter enjoyments, it may be said that it comes *post festum*, but I believe it is better to be late than not to come at all, inasmuch as the remedy, indeed, has been found very effective, and its application very simple and not unpleasant to the patient. It is prepared in the following manner. A wide-mouth glass-stoppered bottle is filled with amianth, or better, with cotton, and then the following mixture is poured on, so that the cotton or amianth is perfectly saturated with it:—

R. Acid. carbolis puriss., 5.0, ℥iv.

Liq. Ammon. caustic, 6.0, ℥iss.

Spec. gravity 0.960

Aque destillat., 10.0

ʒij. ʒij

Spirit. vini. rectificatiss, ℥iv.

The vapors are drawn into the nose frequently during the day, and now and then inhaled into the mouth. A medical gentleman of Stettin, who is renowned not only for his skill as a physician, but likewise for the tremendous catarrh that troubles him regularly every winter, has used this olfactorium anticatarrhoicum with perfect success on his own person, and afterwards on many of his patients, and recommends it highly.

 CHINESE TREATMENT OF TETANUS.

This mode of treatment of tetanus has been seen by English physicians in China and India to be successful: The patient smokes in a pipe a mixture of from twenty to twenty-five centigrammes of crude opium and tea or rose leaves, which are worked up with a small quantity of molasses. When smoking he must inspire as deeply as possible, and continue this operation until the narcotic influence is noticed. This continues then, as a rule, three or four hours. The smoking is repeated as soon as the tenanic symptoms reappear. In the meantime as much nourishment as possible is given. In using opium thus it must be remembered that its narcotic effect is somewhat neutralized by tobacco.—*Philadelphia Med. and Surg. Reporter*.

REGISTER OF THERMOMETER AND BAROMETER

Kept by THOMAS D. KING, 26 Beaver Hall, Montreal.

APRIL, 1872.						MAY, 1872.					
Day of Month.	Ther. 8 a.m.	Ther. at 9 a.m.	Minimum.	Maximum.	Barometer, 9 a.m. corrected to sea level.	Day of Month.	Ther. 8 a.m.	Ther. 9 a.m.	Minimum.	Maximum.	Barometer, 9 a.m. corrected to sea level.
1	29	29	21	30	29.39	1	52	54	46	68	30.02
2	26	28	24	31	97	2	54	56	51	66	29.81
3	28	32	26	40	30.07	3	43	45	38	65	96
4	34	36	31	41	20	4	45	48	43	60	99
5	33	38	26	44	23	5	44	48	35	63	30.26
6	38	41	35	47	11	6	46	49	45	62	01
7	32	36	27	51	10	7	56	61	51	66	.....
8	39	40	35	52	05	8	50	53	46	78	.....
9	42	43	35	54	29.68	9	53	57	52	68	29.89
10	42	43	38	49	57	10	49	50	46	75	30.13
11	34	36	33	44	98	11	53	57	45	62	15
12	35	36	29	46	30.34	12	59	58	53	72	29.83
13	45	49	34	44	29.85	13	43	46	38	67	30.07
14	35	35	32	54	89	14	49	55	39	63	23
15	30	34	27	42	30.07	15	55	57	50	66	28
16	30	31	26	41	01	16	48	52	39	66	26
17	38	42	33	49	20	17	53	56	39	67	11
18	37	40	29	51	29.96	18	54	58	44	70	02
19	39	45	33	57	65	19	58	62	49	74	29.69
20	34	37	32	61	30.02	20	55	57	54	74	54
21	39	44	32	57	07	21	57	59	54	70	81
22	42	36	39	67	29.86	22	55	59	49	71	30.03
23	29	30	26	36	30.07	23	55	56	54	74	29.71
24	36	39	32	43	29.95	24	54	56	48	59	96
25	39	40	38	52	30.07	25	59	61	50	61	71
26	41	44	39	51	.....	26	52	54	50	63	30.02
27	44	47	39	75	.....	27	62	65	51	67	29.80
28	39	42	30	61	.....	28	54	55	54	66	70
29	43	47	35	61	30.36	29	50	52	44	64	97
30	47	50	41	64	34	30	53	54	48	57	30.14
..	....	....	....	....	.....	31	57	59	52	62	05
	36.6	39.0	31.9	49.8	30.00		52.5	55.1	47.0	66.6	29.97
	Monthly Mean, at 8 a.m.	Monthly Mean, at 9 a.m.	Monthly Mean, Minimum.	Monthly Mean, Maximum.	Monthly Mean, Barometer.		Monthly Mean, at 8 a.m.	Monthly Mean, at 9 a.m.	Monthly Mean, Minimum.	Monthly Mean, Maximum.	Monthly Mean, Barometer.

In recording the Temperature the decimals are rejected for simplification. If Thermometer more than half degree, say 10.7, it is rendered 11°, if less than half degree, say 10.3, it is rendered 10°. The mean is scarcely affected by the rejection of the decimals.